

1
2 BEFORE THE STATE OF WASHINGTON
3 ENERGY FACILITY SITE EVALUATION COUNCIL

4 In the Matter of
5 Application No. 96-1

)
)
) TESTIMONY OF KENNETH H.
) JOHNSON
)

6 OLYMPIC PIPE LINE COMPANY

-) • Ground water
-) • Pipeline Operation Monitoring
-) • Land Use
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7 CROSS CASCADE PIPELINE PROJECT
8 _____

9 1. I, Kenneth H. Johnson, am a Program Analyst III with the King Co. Dept. of Natural
10 Resources, Land and Water Resources Division, and Lead of King County's Groundwater Program.

11 I am a Professional Civil Engineer licensed in Washington State. I have more than twenty years of
12 professional experience in groundwater issues, the last fourteen years of it in the Puget Sound
13 region. I have provided environmental consulting expertise for a wide range of clients in both the
14 public and private sectors, on hazardous waste issues as well as on groundwater flow and quantity. I
15 have a Master of Science from Cornell University and a Doctor of Philosophy from the University
16 of Wales, both in Civil Engineering.

17 2. Ground water protection is an important regional issue. Ground water provides
18 approximately 30 percent of the water used in King County for private, municipal, industrial and
19 agricultural needs. Aquifers cross jurisdictional boundaries. In the future, ground water may
20 provide an even greater percentage of our water supply needs.

21 3. A finite amount of precipitation is available to replenish local water resources, and
22 most of this occurs during the fall and winter. The portion that enters the ground replenishes ground
water and provides base flow for streams, wetlands, and rivers during the spring and summer dry

1 months. This base flow sustains fish, wildlife, habitat and recreational values. Aquifers serving
2 water supply needs are commonly recharged within the vicinity of the wells. The natural hydrologic
3 system can be altered by development practices and overuse of the aquifer. The result may be
4 depletion of aquifers.

5 4. Ground water is also subject to contamination from human activity. Once a source
6 of ground water is contaminated it may be lost forever. The cost of protection is considerably less
7 than the cost of remediation and replacement.

8 5. The following King County Comprehensive Plan policies are intended to protect
9 ground water resources from contamination and depletion.

10 **NE-332 In unincorporated King County, areas identified as sole source aquifers or**
11 **as areas with high susceptibility for ground water contamination where**
12 **aquifers are used for potable water are designated as Critical Aquifer**
13 **Recharge Areas as shown on the map, entitled Areas Highly Susceptible to**
14 **Ground Water Contamination. Since this map focuses primarily on water**
15 **quality issues, the County shall work in conjunction with cities and ground**
16 **water purveyors to designate and map recharge areas which address**
17 **ground water quantity concerns as new information from ground water**
18 **and wellhead protection studies adopted by County or state agencies**
19 **becomes available. Updating and refining the map shall be an ongoing**
20 **process.**

21 **NE-333 King County should protect the quality and quantity of ground water**
22 **countywide by:**
a. **Placing a priority on implementation of adopted Ground Water**
Management Plans;
b. **Developing a process by which King County will review, and**
implement, as appropriate, adopted Wellhead Protection Programs
in conjunction with cities and ground water purveyors;
c. **Developing, with affected jurisdictions, Best Management Practices**
for new development and for forestry, agriculture, and mining
operations recommended in adopted Ground Water Management
Plans and Wellhead Protection Programs as appropriate. The goals
of these practices should be to promote aquifer recharge quality and
to strive for no net reduction of recharge to ground water quantity;
and,

1 **d. Refining regulations as appropriate to protect critical aquifer recharge**
2 **areas when information is evaluated and adopted by King County.**

3 **NE-335 In making future zoning and land use decisions which are subject to**
4 **environmental review, King County shall evaluate and monitor ground**
5 **water policies, their implementation costs, and the impacts upon the**
6 **quantity and quality of ground water. The depletion or degradation of**
7 **aquifers needed for potable water supplies should be avoided or mitigated,**
8 **and the need to plan and develop feasible and equivalent replacement**
9 **sources to compensate for the potential loss of water supplies should be**
10 **considered.**

11 **NE-336 King County should protect ground water in the Rural Area by:**
12 **a. Preferring land uses that retain a high ratio of permeable to**
13 **impermeable surface area and that maintain or augment the**
14 **infiltration capacity of the natural soils; and**
15 **b. Requiring standards for maximum vegetation clearing limits,**
16 **impervious surface limits, and, where appropriate, infiltration of**
17 **surface water. These standards should be designed to provide**
18 **appropriate exceptions consistent with Policy R-216.**

19 6. In 1990, pursuant to WAC 173-100, the Washington State Department of Ecology
20 designated portions of East King County that are proposed to be crossed by this project as a
21 groundwater management area. The purpose of this designation was to provide opportunities to
22 protect groundwater resources. The area covered in the East King County Ground Water
23 Management Area ("EKCGWMA") is shown on figure 1.1, attached to my Testimony as Exhibit 1.

24 7. A Draft Management Plan for the EKCGWMA was completed in 1996. The
25 Metropolitan-King County Council reviewed and concurred with this plan, with some reservations,
26 in July 1998. The Plan has since been finalized and submitted to the Washington State Department
27 of Ecology for approval. Preparation and implementation of this Plan are intended, in part, to
28 implement the Comprehensive Plan polices for ground water protection. In addition to identifying
29 the limits and condition of the resource, including important recharge areas, this Plan also identifies
30 potential threats to the resource and potential measures to reduce or eliminate these threats.

1 Potential spills or leaks of hazardous materials have been identified as an area of specific concern in
2 the EKCGWMA Plan and significant mitigation measures need to be taken to reduce the likelihood
3 of a spill, and that if a spill or leak occurs it must be rapidly detected and quickly contained.

4 7. County land use plans relating to the protection of groundwater referred in paragraph 5
5 above are implemented through the following code provisions:

6 KCC 9.12.025 – Unlawful to discharge contaminants into surface and storm water or
7 groundwater. Contaminants include petroleum products and silts, sediments and gravels. If
8 BMPs have been properly installed and maintained, and all known and reasonable
technology (AKART) is being carried out, and discharge continues or is below background
levels, the site is not is violation.

9 KCC 9.12.035 – Source control BMPs should be applied first. If these are not sufficient to
10 prevent contaminants, the county may require treatment BMPs in accordance with AKART.

11 King County precludes development from occurring unless it meets these minimum requirements.

12 King County may additionally require County Best Management Practices (“BMPs”) if federal or
13 State BMPs are not effective at controlling contaminants.

14 8. The purpose of these regulations is to protect King County’s surface and ground water
15 by providing minimum requirements for reducing or controlling the discharge of contaminants and
16 prohibiting the discharge of contaminants into surface, storm and ground waters. Additionally, these
17 regulations are intended to protect the public health, safety and welfare and comply with the
18 requirements of the federal Clean Water Act, 33 U.S.C. 1251, et seq., by:

- 19 • minimizing or eliminating water quality degradation,
- 20 • Preserving and enhancing the suitability of waters for recreation, fishing, and other
beneficial uses,
- 21 • Preserving and enhancing the aesthetic quality and biotic integrity of the water.

22 9. Construction of this project would be consistent with the water quality provisions of

1 this chapter as long as it is undertaken in accordance with all of the provisions detailed in:

- 2 • the Testimony of Nick Gillen and Don Finney providing for the protection of
3 sensitive stream and wetland areas;
- 4 • the general construction standards as set forth in the Testimony of Randy Sandin;
- 5 • King County's erosion hazard provisions as set forth in the Testimony of Steve
6 Bottheim and Terry Butler; and
- 7 • the flood hazard and drainage standards detailed in the Testimony of Randall
8 Parsons.

9 10. Groundwater contamination from a potential spill or leak of the pipeline is an issue
10 of broad public interest, both with respect to its potential damaging effects on existing supplies of
11 potable water and existing wetland, stream and aquatic resources, but also because of its potential
12 debilitating effects on future water supply opportunities for eastern King County and the on-going
13 and long term efforts to restore depleted stocks of Puget Sound Chinook and other species that are
14 threatened or on the verge of being listed under the Endangered Species Act.

15 11. As noted on Table 3.6-4, DEIS page 3-138, groundwater resources within King
16 County have the highest sensitivity ratings of any of the areas crossed by this project. The
17 sensitivity rating is a relative indicator of the value of the resource and the environmental sensitivity
18 to a leak or spill. The only mitigation that is being proposed by the applicant or the DEIS is
19 increased inspection and line monitoring compared to that in less sensitive areas, in conjunction
20 with conventional SCADA systems, cathodic protection, and a spill response program. These
21 provisions are already mandatory requirements in all areas covered by this project and do not, by
22 themselves, provide the additional protection that is needed for these important groundwater
resource areas. For reasons set forth in the Testimony of Randy Sandin, we do not agree with the
conclusory statements contained in the DEIS that these measures make this a "state of the art"

1 project (DEIS, page 3-336) or that the probability of a spill is small.

2 12. We do not agree that periodic testing that simply meets legal requirements (DEIS
3 page 3-336) will provide adequate protection against a spill or will adequately protect ground water
4 resources.

5 13. The project as proposed does not provide adequate protection to ground water
6 resources. Based upon the foregoing, we would recommend that the DEIS, and ultimately the
7 Council, independently and objectively evaluate and require optional construction, inspection, and
8 leak detection techniques that are designed to improve the safety of the proposed project and
9 effectively detect small leaks. In addition, we would recommend that the following measures be
10 incorporated into the DEIS and into any recommended site certification as supplemental mitigation:

- 11 • Pipe with a minimum wall thickness of 0.5 inches, covered with 40 mils of high
12 density polyethylene and 1 inch of standard concrete, will be used in all areas that
13 have a ground water sensitivity/impact rating of 10 or above. (DEIS, page 3-138)
14 This would include the section of the pipeline beginning at milepost 16 (immediately
15 north of the North Fork Cherry Creek crossing and extending to the Snoqualmie
16 Summit (see SCA, page 3.3-69; Table 3.3-10).
- 17 • Construct a secondary containment system, consisting of lined trenches or double-
18 walled pipe, or a combination of the two, through all high-value groundwater
19 resource areas. (Western Washington, at a minimum) In conjunction with this, install
20 an effective, remote leak detection system that will detect small leaks (See
21 Mastendrea et.al., 1982).
- 22 • Install block valves on each side of major rivers and high resource value streams and
wetlands. Line the block valve vaults to capture leaked or spilled product and provide
an effective, remote leak detection system.
- Develop a specific on-ground inspection program for sensitive groundwater, stream,
wetland and aquatic resource areas.
- The applicant should be required to negotiate compensation packages with all senior
water right holders and water purveyors prior to a final decision on the ASC. To
postpone this requirement until after construction and prior to operation puts the
public at a significant disadvantage in negotiations. In addition, these negotiations

1 may influence final design, routing and additional safety features that are difficult to
2 implement when the project is complete.

3 DATED this 11th day of February, 1999

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6 Kenneth H. Johnson
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